

2023 ANNUAL REPORT

Maya Health Alliance

Wuqu' Kawoq



mayahealth.org



Maya Health | Wuqu' Kawoq Leadership Team



FROM OUR CHIEF EXECUTIVE OFFICER

Dear Maya Health Community,

I'm especially excited to share our latest annual report; 2023 was truly a transformative year!

Some highlights: More than ever, we're seeing the power of centering language and community, particularly women, in our work and of using rigorous evaluation to improve our efforts to build health equity in Guatemala. Increasingly, our team members have been invited to share in international conversations on topics ranging from indigenous health to malnutrition to family planning. We have contributed to groundbreaking publications on diabetes care, language barriers to child development, and heart disease. We have received two major, multi-year grant awards to grow our life-saving work in Maternal & Infant Health and leverage artificial intelligence to prevent infant deaths. To enable this progress, we have expanded our Board and our team, which now includes more than 100 exceptional women and men dedicated to serving their communities.

These achievements indicate greater recognition that what we are doing works and that it has relevance not only in rural Guatemala but also in other contexts where similar challenges exist. This in turn inspires us to recommit to doing, learning, and sharing everything we can so that the best possible health and well-being are within reach for everyone, no matter where they were born or what language they speak.

Looking ahead, 2024 promises to be another momentous year. With a new Presidential Administration in place focused on better health for all Guatemalans, we could not be more excited about the possibilities for collaboration and advancement of our shared goals.

None of this would be possible without you. I am deeply grateful for your trust, support, and partnership and look forward to continuing our work together.

With great appreciation,



Anne Kraemer, CEO

Maya Health Alliance | Wuqu' Kawoq
2023 Annual Report



OUR WORK

Our Maya community health care providers partner with patients to develop practical, sustainable solutions to break down barriers to health and well-being like language, cost, distance, and discrimination.

Over more than 17 years, we have demonstrated that building capacity among Maya health care workers increases access to high-quality health care and improves health outcomes for those most in need. It also fosters dignity, opportunity, choice, and the promise of a better future for Guatemala's Maya women and their families.

We continue to improve care with ongoing evaluation and feedback. We are a global leader in research and treatment models for chronic diseases, including child malnutrition, diabetes, and cancer.

Mission

Building equity and transforming health in rural Guatemala.

Vision

Everyone has access to high-quality care, no matter where they were born or what language they speak.



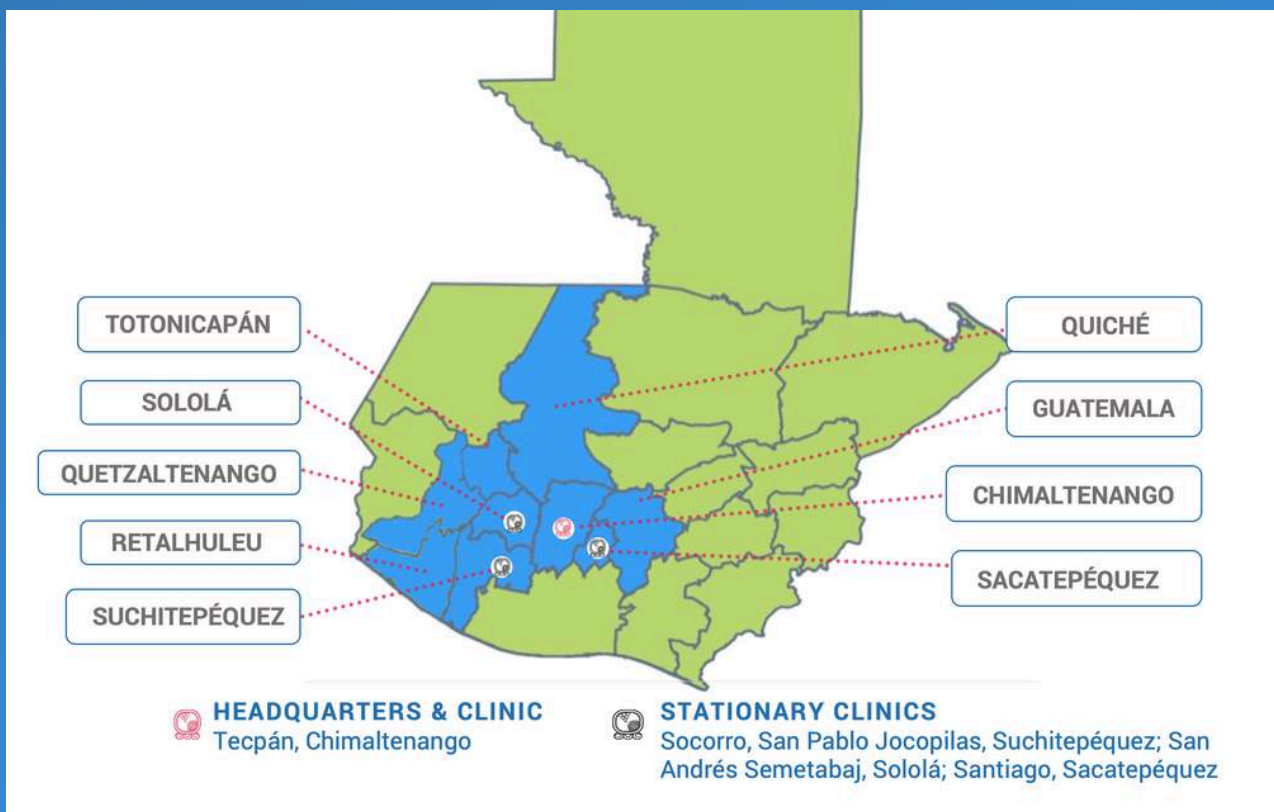
WHERE WE WORK

Guatemala is one of the most inequitable countries in the world and home to some of the poorest communities in the Western Hemisphere. The public health system is vastly under-resourced, receiving less than 2% of social spending. While nearly half of the population speaks a Mayan language, most healthcare is delivered in Spanish. These barriers, along with long-standing discrimination, prevent many indigenous people in rural areas from accessing basic health services.

Health outcomes reflect these disparities:

- As many as 70% of children in rural Maya communities suffer from malnutrition.
- Maternal mortality rates among indigenous women are three times as high as those of non-indigenous women.
- The rate of type 2 diabetes and pre-diabetes among indigenous people is 25% – more than double the national rate.

We are working in hundreds of rural communities in nine states in Guatemala to close these gaps.



SUSTAINABLE DEVELOPMENT

Working in rural Guatemala with historically marginalized populations, Maya Health Alliance | Wuqu' Kawoq is at the forefront of the United Nation's Sustainable Development Challenge. Since we began in 2007, we have strived to create a self-sustaining, holistic approach to healthcare that recognizes the many layers of human well-being.

The UN Sustainable Development Goals are a natural fit with our aims and approach, and we have used them to refine our vision of healthcare in Guatemala. Currently, we are taking meaningful steps to fulfill many of the 17 goals:



2023 IMPACT

As one of the only organizations providing comprehensive healthcare in indigenous Mayan languages, Maya Health Alliance | Wuqu' Kawoq serves more than 11,000 patients annually in hundreds of rural communities. About 90% of patients identify as women or girls. In addition to partnering with patients to improve their health and well-being, we work for systems-level change with a range of community, government, and civil sector partners. Additionally, we are committed to building understanding and driving change through research and evaluation. Our Center for Indigenous Health Research is one of the leading publishers of medical and scientific articles in Guatemala.

HEALTH SERVICES PROVIDED IN 2023

11,280 patients

35,665 visits

Including:



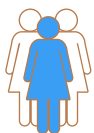
NUTRITION

794 patients
6,745 visits



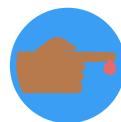
PRIMARY CARE

563 patients
2,288 visits



WOMEN'S HEALTH

8,782 patients
21,934 visits



DIABETES

120 patients
1,741 visits



MATERNAL HEALTH

947 patients
2,657 visits



COMPLEX CARE

74 patients
300 visits

2023 HIGHLIGHTS

FEBRUARY

Research Fellow **Dr. Gabriela Montenegro** is honored with the **2023 OWSD-Elsevier Foundation Award** for Early-Career Women Scientists in the Developing World.

Chief Medical Director Waleska López Canú presents on **health equity** before the Executive Secretariat of the Council of Ministers of Health of Central America and the Dominican Republic.



MAY

We completed the first **Acciones Que Nutren (Actions that Nurture)** master class designed to share effective strategies for fighting malnutrition with health workers across rural Guatemala.

JULY

Maya Health and partner safe+natal receive a **\$1.8 million award from Google.org** to support our work using AI for safe and healthy births.



AUGUST

Guatemalans overwhelmingly **elect reformist candidate Bernardo Arévalo** of the Movimiento Semilla to be the next president.

OCTOBER

Indigenous community representatives organize roadblocks and **protests against the efforts to keep Bernardo Arévalo from power.**

We receive a **\$1 million grant as a finalist in the Maternal & Infant Health Award** launched by ICONIQ Impact and The Patchwork Collective.

NOVEMBER

Our research team publishes a **major study on links between language-appropriate services and child development** in The Lancet Global Health.

DECEMBER

We **host researchers from India, Turkey, and the US who are collaborating on a study** to evaluate the effectiveness of the International Guide for Monitoring Child Development.



OUR TEAM

96% Guatemalan
90% Indigenous Maya
80% Women

We are a diverse 100+ member team of physicians, nurses, anthropologists, linguists, teachers, nutritionists, drivers, engineers, public health practitioners, lawyers, designers, accountants, communicators, entrepreneurs, and community health workers. We are united by our dedication to improving health and well-being in Guatemala.



MAKING A DIFFERENCE TOGETHER!



2023 Retreat, Antigua, Guatemala

OUR BOARD OF DIRECTORS

We have two boards, one based in the US and one in Guatemala. Each board serves different legal and organizational functions. The US board focuses principally on fundraising, financial management, and strategic direction, and the Guatemalan board focuses on program implementation and strategy.

We are so grateful to our dedicated board members and for the time and resources they contribute!

BOARD OF DIRECTORS

ANNE KRAEMER

**Chief Executive
Officer**
Anthropologist
Antigua, Guatemala



PETER ROHLOFF

Chief Science Officer
Physician
Antigua, Guatemala
Boston, MA



KARA ANDRADE

US Board Member
PhD Candidate
American University
North Carolina



JUAN COJ

**Guatemala Board
Secretary**
Agriculture Worker
Tecpán,
Chimaltenango



MARCELA COLOM

US Board Member
Family Physician
Albuquerque, NM



CHRIS DAVIES

US Board Member
Property Manager
San Francisco, CA



MARK DOERR

US Board Member
Attorney
New York, NY



BRENT HENDERSON

US Board President
Associate Professor
Gainesville, FL



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Retired Healthcare
Management
Consultant
San Francisco, CA



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US Board Member
Healthcare Engineering
Program Manager
San Francisco, CA



CLAIRE MELVIN

US Board Member
Attorney
New York, NY



TOM MELVIN

US Board Treasurer
Financial Analyst
New York, NY



FELIPA MUS

Guatemala Board Member
Health Committee
Volunteer
Guatemala



CAROLYN PURCELL

US Board Member
Retired Family Nurse
Mountain View, CA



RUSSELL ROHLOFF

US Financial Controller
Engineer
Bethel, VT



HEIDY ROQUEL

Guatemala Board Treasurer
Community Volunteer
Tecpán,
Chimaltenango



BOARD OF DIRECTORS

ANTONIO SIMAJ

Guatemala Board Secretary

Retired Firefighter,
Community Volunteer
Nahualá, Sololá



SANDY SUDWEEKS

US Board Member

Retired Professor
Costa Mesa, CA



HERB VANHOOKE

US Board Member

Information
Technology Consultant
Rehoboth Beach, DE



PROGRAMS



Our programs interweave to provide comprehensive care for patients in rural Guatemala across their lifespan. Our physicians, nurses, health educators, community health workers, pharmacists, and drivers work together in rural communities to ensure that patients get the education, continuous care, resources, and emotional support they need to realize the best possible health and well-being. Throughout, we collect data and information on patient health and experiences that team members analyze to help improve care outcomes. At the same time, our Center for Indigenous Health Research is conducting groundbreaking studies on best practices in rural health that help advance our care. Read on for 2023 program highlights!



WOMEN'S HEALTH

Our Women's Health Program provides preventive health visits for more than 5,000 women a year in hundreds of small communities and homes, eliminating obstacles of distance and transportation, and making self-care more feasible for women who are balancing home and earning responsibilities.

Our nurses provide regular screening for cancer, diabetes, and other chronic conditions; family planning counseling and methods; and crucially, education and consultation in patients' Mayan languages, building trust, and empowering women to take control of their health.

This year, we opened our new DNA lab, which enables more accurate and timely HPV testing for cervical cancer; and trained nurses to treat early-stage symptoms in the field. We also continued to grow our Salud para la Vida partnership with Friendship Bridge, a microfinance organization, bringing preventive health services to thousands of microfinance clients.



MATERNAL & INFANT HEALTH

Guatemala has one of the highest maternal mortality rates in Latin America, particularly among indigenous mothers. Most deaths from childbirth can be prevented with timely diagnosis and hospital care. Our Maternal & Infant Health Program eliminates barriers to care, including language, cost, and discrimination. We have co-designed a smartphone application in partnership with safe + natal and Maya midwives so that they are better able to detect high-risk complications in the field. If hospital care is needed, our indigenous care navigators accompany mothers throughout, coordinating, translating, supporting, and advocating for mothers, and ultimately creating more positive hospital birth experiences for all involved.

In 2023, we received two major awards that recognize the value and potential of this work: the Maternal & Infant Health Award and the Google.org AI for the Global Goals Award. This support will enable us to continue to improve and expand the program to cover 2,000 births a year, and to explore the potential of AI to increase safe and healthy births in rural settings.

CENTER FOR INDIGENOUS HEALTH RESEARCH MATERNAL & INFANT HEALTH STUDIES

AI-Driven Low-Cost Ultrasound For Automated Quantification of Hypertension, Preeclampsia, and IUGR (2023-): Using artificial intelligence to develop techniques for predicting intrauterine growth restriction and preeclampsia from low-cost, hand-held maternal and fetal Doppler recordings, enabling mothers to receive more timely care for complications.

Partners: Emory University

Funding: National Institutes of Health / National Institute of Child Health and Human Development





FAMILY-CENTERED NUTRITION

Child malnutrition remains one of the most significant health issues in Guatemala, with rates approaching 70% in some rural, Maya communities. Malnutrition and stunting in the first years of life not only pose immediate health threats, but can also compromise future education, employment, and health prospects. Climate change is only making the problem worse, bringing droughts, floods, and storms that decimate crops.

To address this increasingly critical issue, our Family-Centered Nutrition Program team partners with caregivers of 800 children a year in the first 1,000 days of life to foster children's growth and development. Nurses and nutrition technicians work with families to watch for key developmental milestones and to find sources for healthy, diverse nutrition using locally available foods.

In addition, we collaborate with an array of government, business, and nonprofit partners to identify and develop sustainable, comprehensive solutions that address the systemic factors driving this national crisis.

CENTER FOR INDIGENOUS HEALTH RESEARCH

NUTRITION & EARLY CHILDHOOD DEVELOPMENT STUDIES

Aflatoxin Exposure, Growth Faltering, and the Gut Microbiome Among Children In Rural Guatemala (2023-): Investigating the role of aflatoxin, a mold that grows on crops, on child growth. Researchers are evaluating aflatoxin exposure, markers of inflammation, and gut microbiome composition and function.

Partners: Arizona State University

Funding: National Institutes of Health/National Institute of Environmental Health Sciences

A Hybrid Effectiveness/Implementation Trial of the International Guide For Monitoring Child Development (GIMDI) (2021-): Assessing the implementation and effectiveness of the International Guide for Monitoring Child Development in India and Guatemala within established rural community health worker programs. The primary objectives are to understand barriers and supporting factors for implementing the guidelines and to assess their effectiveness in diverse contexts.

Partners: Brigham and Women's Hospital

Funding: National Institutes of Health / National Institute of Child Health and Human Development

Effects of Complementary Feeding of Eggs on Infant Development and Growth In Guatemala (2020-) Investigating the impact of daily egg consumption on addressing child malnutrition.

Funding: American Academy of Nutrition and Dietetics

Mobile Health Intervention to Promote Positive Infant Health Outcomes In Guatemala (2021-) Developing and determining the effectiveness of smartphone technology that can be used to engage primary caregivers directly in the active monitoring of their infants' development, and to provide tailored feedback and support for the provision of nurturing care and positive infant developmental outcomes.

Partners: Children's Hospital Los Angeles

Funding: National Institutes of Health / National Institute of Child Health and Human Development



CHRONIC DISEASE & COMPLEX CARE

Living in rural Guatemala with a complex or chronic disease often means going without treatment due to challenges finding good quality, affordable care and medications. This results in far worse health outcomes and complications that might otherwise be avoided, such as blindness and amputations for patients with diabetes. Patients with the most difficult cases find their way to us through referrals from the public health system, community members, and our other programs.

We bring together clinical care and health education in patients' Mayan languages and work with patients and their families over the long term to achieve the best possible results. We are experts in managing both adult and pediatric chronic diseases, including diabetes, heart disease, cancer, kidney failure, epilepsy, and rheumatoid arthritis. We also collaborate with the Ministry of Health and others in efforts to improve care for chronic and complex conditions across rural Guatemala.

CENTER FOR INDIGENOUS HEALTH RESEARCH

CHRONIC DISEASE STUDIES

Promoting Safe and Healthy Workplaces in Honduras, Guatemala, and El Salvador (PREP for Change) (2023-) Improving occupational safety and health (OSH) conditions for workers in the sugar and garment (maquila) sectors, with a focus on workplace illnesses and injuries, chronic kidney disease of non-traditional causes (CKDnt), and Covid.

Partners: La Isla Network

Funding: US Department of Labor

Exploring Risk Factors and Predictors of Endemic CKDU in Agricultural Regions of Four Central America Countries (2022-) Identifying risk factors for chronic kidney disease of unknown origin (CKDU) and decline in kidney function in Costa Rica, Panama, Nicaragua, and Guatemala. This work is being conducted through the SALTRA (Central American Program for Health, Work and Environment) network connecting locally-based universities, NGOs, governmental organizations, public health authorities and local healthcare workers.

Partners: Programa Salud, Trabajo y Ambiente (SALTRA), Universidad Nacional de Costa Rica

Funding: National Institutes of Health/National Institute of Environmental Health Sciences/National Institute of Diabetes and Digestive and Kidney Diseases





REPORTS FROM THE FIELD

Our community health workers, care navigators, drivers, and nurses travel thousands of miles every year throughout Guatemala's rural Highlands, providing care, delivering food and medications, and offering education and encouragement to families facing health challenges.

The following reports offer a look into their long days and remarkable dedication, and the wonderful patients they meet every day.



DEVOLVER ESTA CASH AL VENDEDOR

DELIVERING HEALTH FOR LIFE

Our Salud para la Vida (Health for Life) program with Friendship Bridge brings preventive healthcare to thousands of women living in rural communities where such care is ordinarily not available. Here's a glimpse into the work of Salud para la Vida nurses.

As daylight approaches, we roll into bustling Los Encuentros to pick up Salud Para la Vida nurse Alicia and trainee Reyna, who have traveled on foot and by bus from their respective homes to meet the Maya Health Alliance | Wuqu' Kawoq van. A short distance down the Pan-American Highway, we peel off onto a road lined with apple orchards and corn rows extending up impossibly steep slopes. Before long, the truck is switch-backing its way up rutted dirt roads until Alicia signals for the driver to pull over. The two women spring from the truck carrying backpacks and Wuqu' Kawoq totes and start up a slick trail, straddling the path to get purchase on the grassy edges and avoid slipping in the muck.

After a 15-minute climb, they arrive at a home perched on the hillside where they're greeted by Josefa, a Salud Para la Vida client who has cleared a room in her home to host a pop-up community clinic. Alicia and Reyna quickly produce a full medical office from their packs, arranging a blood pressure cuff, test kits, gloves, masks, sanitizer, cotton balls, and educational aids on a small table in the center of the room. They place a scale on the floor and unscroll a long paper with tick marks that they affix to the wall to measure height.



Reyna demonstrates breast self exams.

Their first patient is their host Josefa, who runs a weaving business in addition to overseeing her household. For Josefa and each woman who follows, Alicia and Reyna check height and weight, take blood samples and blood pressure readings, demonstrate breast exams, and offer cervical cancer testing, recording notes on their tablets in each patient's medical record. They flow between Spanish and the K'iche' Mayan language, taking the lead from their patients.

The next patient, Lucia, shares that she has walked an hour from a nearby village for a chance to see the nurses. When her exam is finished, she presses her fingerprint onto her health record, offers her thanks, and sets out for the long walk home. Next, the nurses greet Manuela, who brings her small daughter after dropping another child at school.



Alicia explains the process for cervical cancer testing.

Just as Alicia and Reyna are packing up their last bag, they learn another woman, Maria, is hurrying to see them. They unpack and the room is ready when she arrives. Maria, a 26-year-old wife and mother of one child, listens intently when the nurses describe the importance of cervical cancer screening and demonstrate the process with a model cervix.

In the end, she demurs, explaining she would need her husband's permission for such an intimate exam. The nurses encourage her to have a conversation with her husband and consider the test for a future visit. They pack up shop, head down the hill, and make their way to the women awaiting them at the end of another trail.

MANAGING DIABETES WITH LOVE & SUPPORT



Dorcas and her mother Doña Albertina

Our diabetes nurses and doctors work one-on-one with patients in their homes. These home visits help our team better understand patients' particular challenges and see the resources they have available to manage their care so that they can work with patients like Dorcas and Doña Albertina for the best possible outcomes.

When Dorcas discovered that she had diabetes in 2019, her husband left her, fearing he might “catch it.”

Since then, Dorcas has managed to support her seven year-old daughter and her mother, Doña Albertina, who also has diabetes, by washing clothes at the public pila. She gets help from her sister, who also lives with the family in the town of Tecpán.

Before joining our Diabetes Program, Dorcas and Doña Albertina tried treating their condition with natural remedies recommended in their community such as cow bile, whiskey blended with lemon, quilete, guava leaves, and hibiscus tea. In the end, none of this helped improve their situations, and both Dorcas and her mother's blood sugar levels remained dangerously high. Dorcas was underweight and had very little energy; she wanted to spend much of her time sleeping. Eventually, she found Maya Health Alliance through a referral from the local health center.

Maya Health Diabetes Educator Damaris worked with mother and daughter, helping them learn about diabetes and what they could do to treat the condition. Dorcas shared, "Damaris taught me the rules, she taught me the 'four legs of the chair': she told me that if I exercise, take my medicines, follow my diet, and do my check-ups, I will be fine."

In addition to education, the Diabetes Program provided Dorcas with insulin, which is extremely costly and difficult to acquire outside major cities in Guatemala.

Although Dorcas's situation improved, the Maya Health team became concerned that she did not seem entirely well. During home visits, they learned that Dorcas had been dividing her insulin doses to share with her mother. Upon discovering this, the team enrolled Doña Albertina in the Diabetes Program, and both women currently have their diabetes under control.

Dorcas now has more energy to care for her daughter and her mother, who has been losing her vision due to diabetes.



Dorcas confers with Diabetes Nurse Carol.

NAVIGATING A PATH TO LIFESAVING CARE

Whenever possible, we provide care in patients' homes and communities, avoiding stressful and expensive trips to specialists and hospitals in Guatemala City. In cases that require advanced care, we offer transportation and care navigation to help patients manage visits to teeming hospitals and medical centers where few, if any, Mayan languages are spoken. Here's what that looked like one Tuesday in April.

Driver Doroteo left Tecpán headquarters for Guatemala City at 3:30 am in a Maya Health van carrying patient care coordinator Yesenia and patients headed for INCAN, the national cancer hospital in Guatemala City. They arrived shortly before 6 am, just in time to secure appointments for the first half of the day. Yesenia joined a line winding through the packed lobby to collect appointment numbers for the patients, then escorted the group through a maze of hallways to their respective waiting areas.



Yesenia helps a patient manage paperwork.

As the patients settled in for hours-long waits, Yesenia continued her circuit through the hospital, gathering receipts and papers, knocking on unmarked doors to talk with nurses managing the flow, and stopping periodically to check with the patients to see if they needed help with translation from Spanish or simply a few reassuring words.



**Knowing whose doors
to knock on can make
all the difference.**

Midstream, she returned to the van so that she and Doroteo could haul boxes of special milk formula imported from the United States to a waiting taxi that would then transport the boxes to the town of Jalapa, the home of two young patients with complex medical problems who require this special nutrient to survive.

After that, Doroteo set out to pick up Ludwin, a 23-year-old with severe sight and dental problems stemming from diabetes, for a visit to an eye specialist. As he and his mother waited in the crowded clinic, Yesenia helped arrange for a discount for an ultrasound and discovered a special clinic day when he could have surgery without charge. A month later, he would come back for cataract surgery that ultimately would restore his vision.

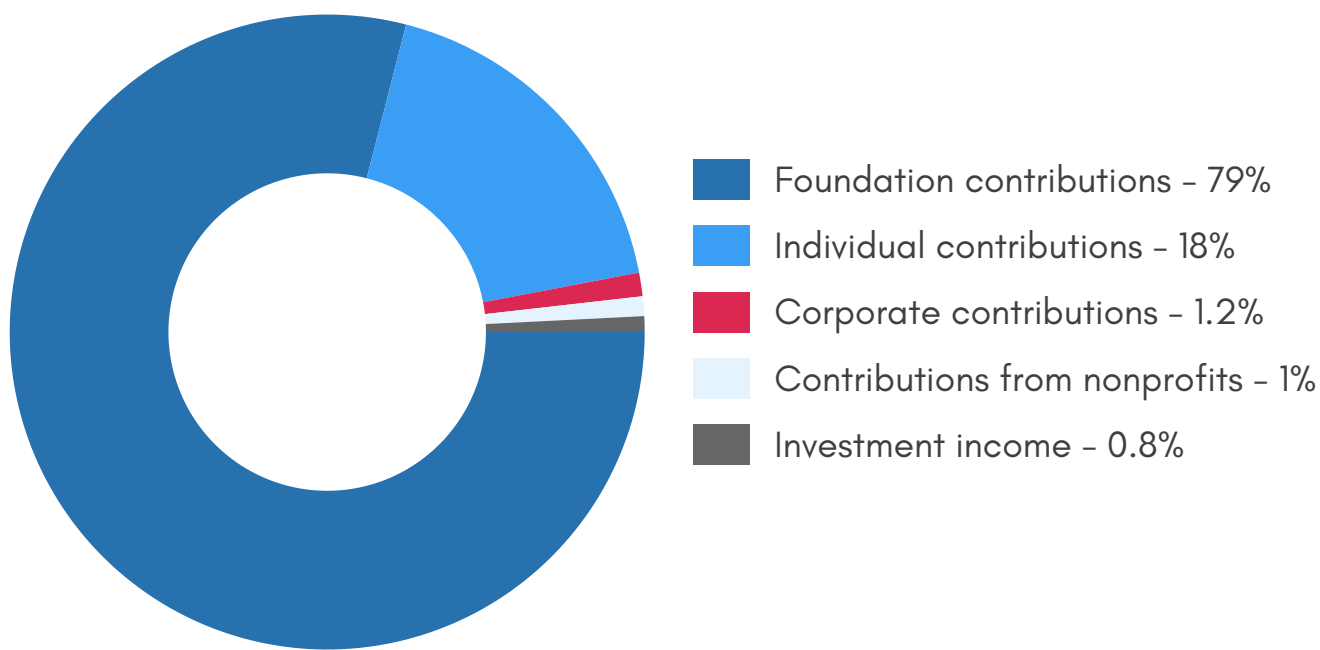
Yesenia returned to the cancer hospital to welcome Filipa, a longtime patient who had recently completed treatment for cervical cancer and had come for a follow-up test. Yesenia joined Filipa for her appointment, facing down a harried nurse who disputed a detail on Filipa's payment slip and threatened to keep her from entering the consultation room. Filipa's test results indicated that the cancer had been successfully treated but that other potential problems required more investigation, so Yesenia scheduled a follow-up appointment before offering a quick hug goodbye.

While patients finished their hospital visits, Yesenia made her way through several blocks swarming with vendors selling snacks, masks, and Bibles to a pharmacy known to have reasonable rates for insulin, which is prohibitive in much of Guatemala.

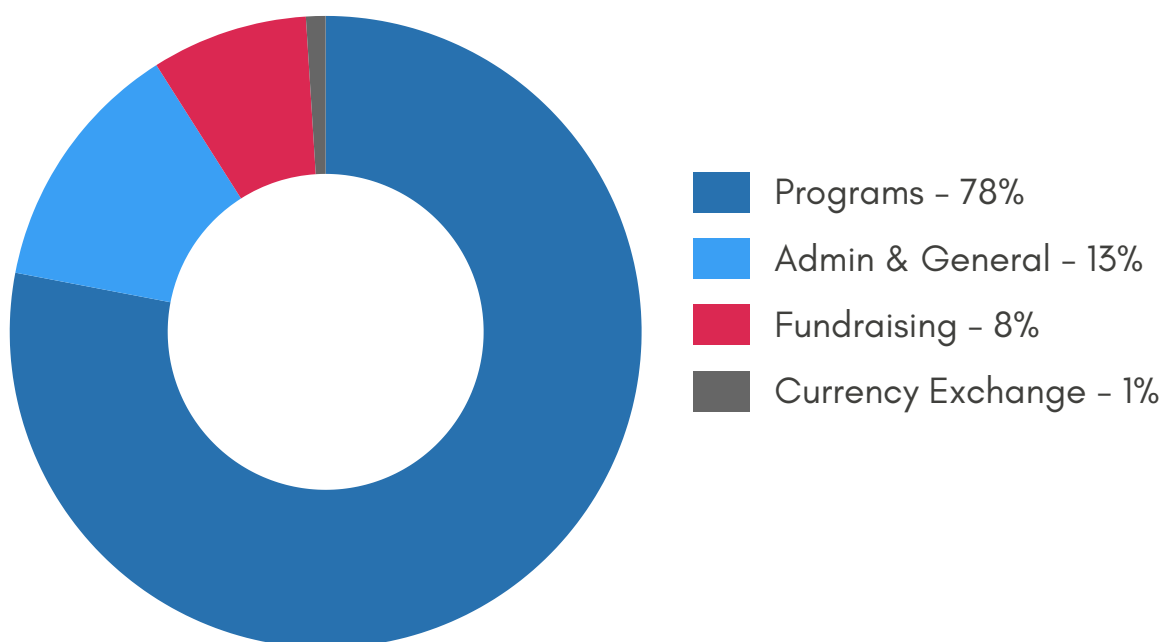
At 4 pm, with all appointments completed and payments submitted, the patients loaded back into the van for the two-hour ride home. Within minutes, nearly everyone was asleep except Yesenia and Doroteo, who worked together to lay out the fastest route as the van inched homeward through the city traffic.

2023 FINANCIALS

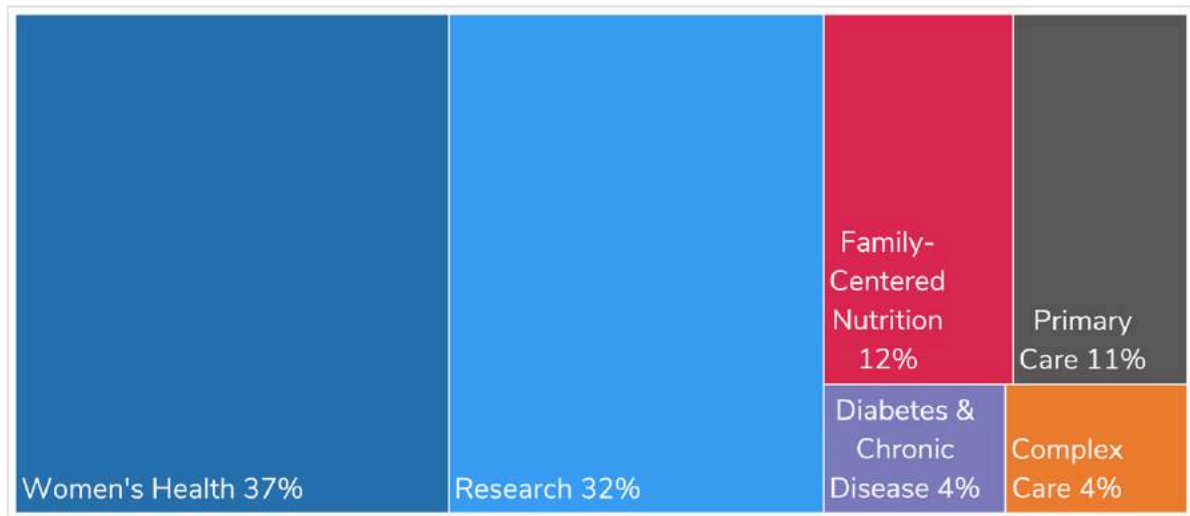
2023 REVENUE: \$3,996,210



2023 EXPENSES: \$2,351,011



PROGRAMS: \$1,824,94



PARTNERS

Maximizing impact through collaboration

Our rich network of partnerships is key to our success!



PARTNERS



Luis von Ahn
Foundation



2023 PUBLICATIONS

The Center for Indigenous Health Research, founded by Maya Health Alliance | Wuqu' Kawoq, is a leader in global health research. Below are some of the publications our research team produced in 2023 in areas including kidney disease, nutrition, and vaccine acceptance.

Strasma A, Reyes ÁM, Aragón A, López I, Park LP, Hogan SL, Thielman N, Wyatt C, González-Quiroz M. **Kidney disease characteristics, prevalence, and risk factors in León, Nicaragua: a population-based study.** BMC Nephrol. 2023 Nov 12;24(1):335. doi: 10.1186/s12882-023-03381-1. PMID: 37953252; PMCID: PMC10641961.

Gonzalez-Quiroz M, Heggseth B, Camacho A, Oomatia A, Al-Rashed AM, Zhang Y, McCreight A, Jewell N, Aragon A, Nitsch D, Pearce N, Caplin B. **Population-level detection of early loss of kidney function: 7-year follow-up of a young adult cohort at risk of Mesoamerican nephropathy.** Int J Epidemiol. 2024 Feb 1;53(1):dyad151. doi: 10.1093/ije/dyad151. Erratum in: Int J Epidemiol. 2023 Nov 29;; PMID: 37930052; PMCID: PMC10859140.

NCD Risk Factor Collaboration (NCD-RisC). **Global variation in diabetes diagnosis and prevalence based on fasting glucose and hemoglobin A1c.** Nat Med. 2023 Nov;29(11):2885-2901. doi: 10.1038/s41591-023-02610-2. Epub 2023 Nov 9. PMID: 37946056; PMCID: PMC10667106.

Asturias G, Cordón A, Pineda E, Figueroa Z, V. Proaño G, Yakes Jimenez E, Rohlf P. **Short Report: Mapping Nutrition Interventions in Guatemala To Identify Opportunities.**

Yoo SGK, Chung GS, Bahendeka SK, et al. **Aspirin for Secondary Prevention of Cardiovascular Disease in 51 Low-, Middle-, and High-Income Countries.** 2023;330(8):715-724. doi:10.1001/jama.2023.12905.

De la Garza Iga FJ, Mejía Alvarez M, Cockroft JD, et al. **Using the project ECHOTM model to teach mental health topics in rural Guatemala: An implementation science-guided evaluation.** International Journal of Social Psychiatry. 2023;0(0). doi:10.1177/00207640231188038.

Skinner NA, Sanders K, Lopez E, Sotz Mux MS, Abascal Miguel L, Vosburg KB, Johnston J, Diamond-Smith N, Kraemer Diaz A. **Barriers to COVID-19 vaccine acceptance to improve messages for vaccine uptake in indigenous populations in the central highlands of Guatemala: a participatory qualitative study.** BMJ Open. 2023 Jan 27;13(1):e067210. doi: 10.1136/bmjopen-2022-067210. PMID: 36707110; PMCID: PMC9884572.

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Rohloff P, Flood D, Tuiz E, Kurschner S, Nandi M, Tschida S, Wilcox K, Chary A. **Adults' experiences with type 2 diabetes in rural Guatemala: a qualitative study.** J Health Care Poor Underserved. 2023;34(1):208-223.

Katebi N, Sameni R, Rohloff P, Clifford GD. **Hierarchical Attentive Network for Gestational Age Estimation in Low-Resource Settings.** IEEE J Biomed Health Inform. 2023 May;27(5):2501-2511.

Cheng Q, Glesener H, Montenegro G, Torres O, Miller AC, Krajmalnik-Brown R, Rohloff P, Voth-Gaeddert LE. **Assessment of aflatoxin exposure, growth faltering and the gut microbiome among children in rural Guatemala: protocol for an observational prospective cohort and bioreactor simulations.** BMJ Paediatr Open. 2023 Apr;7(1):e001960.

NCD Risk Factor Collaboration (NCD-RisC). **Diminishing benefits of urban living for children and adolescents' growth and development.** Nature. 2023 Mar;615(7954):874-883. doi: 10.1038/s41586-023-05772-8. Epub 2023 Mar 29.

Wallace TC, Montenegro-Bethancourt G, Rohloff P, Jimenez EY, Proaño GV, McCabe GP, Steiber A, Ruosch A, Laessig I, Ladwig E, You H. **Comparison of the nutrient composition of eggs produced in the Guatemalan highlands during the wet and dry seasons.** Food Sci Nutr. 2023 Oct 13;11(12):8163-8173. doi: 10.1002/fsn3.3736.





 MAYA HEALTH ALLIANCE
WUQU' KAWOQ

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